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basic imagery interpretation report

Radar Cross-Section Test Facilities, USSR (S)

COMMO/ELEC/RADAR R&D FACILITIES
BE: Various
USSR

Secret

WNINTEL

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DECEMBER 1982
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INSTALLATION OR ACTIVITY NAME					COUNTRY
Radar Cross-Section Test Facilities					UR
UTM COORDINATES	GEOGRAPHIC COORDINATES	CATEGORY	BE NO.	COMIREX NO.	NIETB NO.
NA	See below	See below	See below	See below	See below

MAP REFERENCE

SAC. USATC, Series 200, Various sheets, scale 1:200,000

LATEST IMAGERY USED	NEGATION DATE (If required)
See Abstract	NA

ABSTRACT

1. (S/WN) Five Soviet radar research and development/test facilities are involved in radar cross-section tests. At each of the five facilities is a radar cross-section test area with two or more towers capable of supporting test vehicles/objects on a cable strung between them.

2. (S/WN) This report describes the five facilities and the activity at each from January 1970 through 30 September 1982. Included are a location map and eight annotated photographs.

INTRODUCTION

3. (S/WN) This report discusses radar cross-section test areas that have been observed at five Soviet radar research and development/test facilities (Figure 1, Table 1). Two or more towers used to support test vehicles/objects suspended from a wire strung between the towers are at each of the radar cross-section test areas. In addition, rotatable platforms for radar cross-section tests are at two of the facilities, Kalinin and Volokolamsk. All applicable imagery acquired from January 1970 through [redacted] was used in the preparation of this report, which includes a location map and eight annotated photographs. 25X1

BASIC DESCRIPTION

Aralsk Research and Development Troposcatter and Radcom Receiver Station

4. (S/WN) Aralsk Research and Development Troposcatter and Radio Communications (R&D Tropo Radcom) Receiver Station is 13 nautical miles (nm) west of Aralsk, on the north shore of the Aral Sea. The station consists of a radar cross-section test area (Figure 2), an operations support area, and an instrumentation and communications area (Figure 3).

5. (S/WN) The radar cross-section test area consists of two guyed 170-meter-high lattice towers, 700 meters apart with a rectangular concrete pad centered between them. A cable has been observed suspended between the towers four times since 1970, the latest in July 1979. When the cable was suspended between the towers, it hung in a parabola with its low point over the concrete pad. The cable has stress insulators approximately 65 meters inboard of the towers. The height of the cable is controlled by a winch house next to each of the towers. Equally spaced around the rectangular concrete pad are four L-shaped structures, with the top of each flush with the ground. These structures have small hatches on top and may be used as camera positions. A small unidentified building, 535 meters north of the concrete pad, is connected by road and underground cable to the rectangular concrete pad.

6. (S/WN) Little activity was observed at the radar cross-section test area during the reporting period. The last activity was observed in April 1971, when a [redacted] diameter object was on the concrete pad. 25X1

7. (S/WN) The operations support area consists of three checkout buildings (one with a high-bay section), a four-bay vehicle storage building, two barracks, a steam plant, a heating plant, and a strategic rocket forces obstacle course. No activity has been observed in the support area since the mid-1970s, when several transporters/dollies and two frameworks with probable vertical support rings at each end were observed next to the high-bay checkout buildings.

8. (S/WN) The instrumentation and communications area is on a bluff overlooking the radar cross-section test area and the operations support area. The instrumentation portion of this area consists of four instrumentation/control buildings, two TWIN DISH tropo antennas, two FLAT FACE radars, and a SHIP WHEEL instrumentation site. Two SHIP WHEEL telemetry antennas, oriented toward the radar cross-section test area, were on the roof of each of the two easternmost instrumentation/control buildings. The two TWIN DISH tropo antennas, oriented on an azimuth of 225 degrees over the rectangular concrete pad between the suspension test towers, are in front of the westernmost instrumentation/control build-

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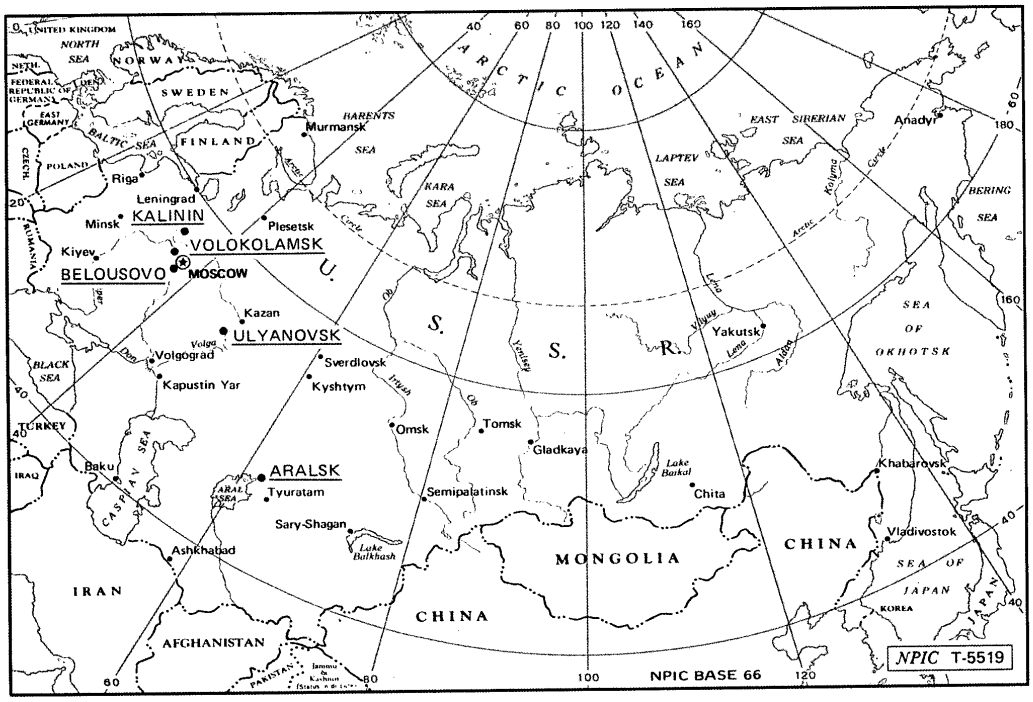

FIGURE 1. LOCATIONS OF FIVE RADAR R&D FACILITIES, USSR

Installation	BE No	Geographic Coordinates	NIETB No
Aralsk R and D Tropo Radcom Receiver Station		46-46-17N 061-20-48E	
Belousovo Probable Electronics Test/Trng Facility		55-04-30N 036-42-00E	
Kalinin Radar Test Facility		56-53-07N 035-56-22E	
Ulyanovsk Radar Calibration/ Checkout Facility		54-24-20N 048-19-06E	
Volokolamsk Radar R and D Facility		56-01-10N 036-07-30E	

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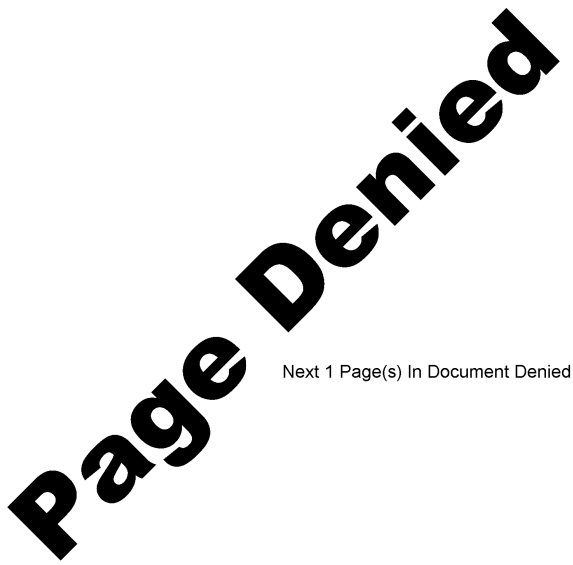
ing. The two FLAT FACE radars, adjacent to the TWIN DISH antennas, are also oriented on an azimuth of 225 degrees. On several coverages during the reporting period, one of the FLAT FACE radars was observed with the antenna sails rotated vertically rather than horizontally. A long clutter screen, with sections in various stages of elevation, was along the edge of the bluff between the antennas and the radar cross-section test area. The SHIP WHEEL instrumentation site is just north of the instrumentation/-control buildings and consists of two van-mounted SHIP WHEEL antennas and three support vans. The SHIP WHEEL antennas are cable connected to the western instrumentation/control building.

9. (S/WN) The separately secured communications facility is to the east and across the road from the instrumentation area. This facility consists of one control building, two horizontal dipole antennas, one 2-2-2 fishbone antenna, and one antenna mast. The horizontal dipoles are oriented on azimuths of [redacted] the fishbone antenna is oriented on an azimuth of 105/285 degrees. 25X1

Belousovo Probable Electronics Test/Training Facility

10. (S/WN) The Belousovo Probable Electronics Test/Training Facility is 3.5 nm southeast of Obninsk and is involved in radar cross-section testing, the probable testing of airborne platforms, and other unidentified testing. The facility consists of a radar cross-section test area, three other test areas, an equipment storage area, an unidentified area, and two housing/support areas (Figure 4).

11. (S/WN) The radar cross-section test area, in the eastern corner of the facility, consists of two 45-meter-high towers, 158 meters apart and with an oval concrete pad centered between them. A concrete test position with a control building and two support buildings is immediately south of the concrete pad. A second concrete test position is approximately 300 meters south of the test area. No activity has been observed on the closest concrete pad, but an unidentified van has been observed on the second.



12. (S/WN) The three other test areas are in a semicircle around the radar cross-section test area. The northernmost test area is separately secured and consists of a concrete pad, an unidentified tower, and a control building. During the reporting period, the tower was observed cable connected to a large unidentified vehicle parked on the concrete pad. The central test area consists of four concrete pads and a probable calibration pad. Once during the reporting period, HIP helicopters were observed on one of these concrete pads, indicating that airborne platforms were tested in this area. The southernmost test area consists of two concrete pads, a secured calibration area, and a probable calibration pad.

13. (S/WN) The unidentified area is secured by a rectangular fence and consists of one building with an antenna pedestal on the roof and an unoccupied concrete pad.

14. (S/WN) The equipment storage area is secured and in the center of the facility. This area consists of one building and two concrete pads. Two van-mounted SHIP WHEEL antennas, four support vans, and an unidentified air traffic control radar were observed within this area during the reporting period.

15. (S/WN) The housing/support areas consist of one high-bay building, one shop building, three vehicle maintenance buildings, and 14 housing/support buildings.

Kalinin Radar Test Facility

16. (S/WN) The Kalinin Radar Test Facility, 2.0 nm northeast of Kalinin, is involved in radar cross-section testing, using both suspension test towers and rotatable test platforms. TALL KING and SQUARE PAIR radars were observed undergoing testing during the reporting period; however, in the past, BAR LOCK, FAN SONG, FLAT FACE, STONE CAKE, and SPOON REST radars have undergone testing there. Other electronics equipment there, probably used in the checkout and calibration of radars, includes TALL RODS high-frequency/direction-finding (HF/DF) equipment, TUB BRICK radar jammers, and SHIP WHEEL telemetry antennas.

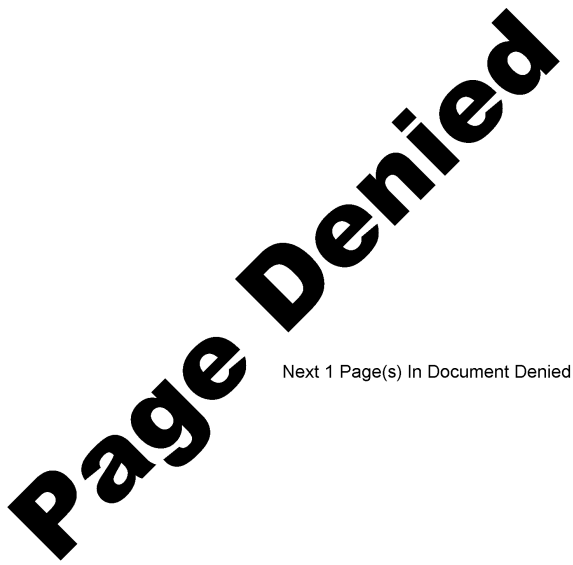
17. (S/WN) When last observed, on [redacted] one FISHBED, one FRESCO, and two unidentified airframes were at the test facility probably being used for radar cross-section testing or possibly for airborne radar calibration. In the past several years, the aircraft and airframes identified at Kalinin have included the FOXBAT, FLOGGER, FARMER, a canvas-covered probable scale model of the CHARGER SST, and probable LA-17 drones. Also, SA-1, probable AS-6, and possible AS-9 missiles have been observed there. 25X1

18. (S/WN) Kalinin Radar Test Facility consists of a radar cross-section/test area, a radar test line, two fishbone antennas, four horizontal dipole antennas, and a housing/support area (Figure 5).

19. (S/WN) The radar cross-section/test area consists of three lattice towers in an L-shaped arrangement. This L-shaped arrangement is generally oriented north/south and east/west. The two towers on the east/west leg, 75 meters high, are approximately 200 meters apart. The towers on the north/south leg, 75 meters and 65 meters high, are approximately 200 meters apart. At different times during the reporting period, airframes were observed next to the towers, but none of the airframes were observed suspended between the towers. Rotatable test platforms, between the towers on both legs of the L-shaped arrangement, are used to rotate objects, thus providing different aspect angles to the radars. No equipment was observed on these platforms during the reporting period.

20. (S/WN) The radar test line, along the western edge of the facility, is divided into five test areas designated A through E. Test area A, the southernmost area, consists of a concrete hardstand, an earthern pad, and two control/test buildings. Five clutter screens were observed between test area A and the radar cross-section/test area. During the reporting period, a TALL KING radar and SQUARE PAIR radar components were being tested in area A. Test area B consists of a circular concrete pad, surrounded by a board or canvas screen, two test control buildings, and a wall-secured equipment storage yard. Since at least 1975, a SQUARE PAIR radar has been on the circular concrete pad, and related electronics vans are cable connected to one of the test/control buildings. Test area C consists of a graded-earth test area, one test/control building, and two support buildings. No radars have ever been identified at test area C; however, during the reporting period, electronics vans were observed undergoing testing there. Test area D consists of a concrete pad, a graded-earth pad, a test/control building, a secured vehicle storage area, a vehicle storage building, and two support buildings. Only electronic countermeasures equipment is present. However, in the past, BAR LOCK and SIDE NET radars were tested there. Test area E consists of a graded-earth test position, a concrete hardstand, a test/control building, a secured equipment storage area, and one support building. For the past several years, a TALL KING C radar and a SCORE BOARD identification friend or foe have been on the concrete pad. During the reporting period, the support vans for the TALL KING were observed on the concrete pad and within this pentagonal area, formed by the four horizontal dipole antennas. A TALL RODS HF/DF antenna was observed on a hill behind the secured equipment storage area.

21. (S/WN) The housing/support area, behind the radar test line along the west edge of the facility, consists of a barracks area, a secured motor pool, a secured fuel storage area, and two equipment storage yards. The barracks area includes four barracks, one messhall, a security building, three support buildings, an athletic field, and an obstacle course. The secured motor pool consists of one vehicle maintenance building and three vehicle storage buildings. The secured fuel storage area contains two POL storage bunkers, two storage buildings, and three support buildings. The two equipment storage yards are secured areas, each with a small storage building.



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Ulyanovsk Radar Calibration/Checkout Facility

22. (S/WN) The Ulyanovsk Radar Calibration/Checkout Facility, 5 nm north-northwest of Ulyanovsk, is involved in the testing/calibration of a new probably vehicle-mounted radar system, as indicated by the presence of a special-purpose trailer in test area B on [redacted] This special-purpose trailer has been used in the past to conceal military vehicles during transit from production plants to test facilities. [redacted] was the first time this vehicle was seen at this facility. On this date, all of the roof panels had been removed from the trailer, but the end sections were still in place. In addition to the special-purpose trailer, a computer van, two support vans, and a box-bodied van were also observed on that date.

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23. (S/WN) Ulyanovsk radar facility consists of two separately secured radar test areas—designated A and B—a radar cross-section test area, and four calibration towers (Figure 6). Test area A is wall secured and consists of a test control building with four large doors and a high-bay section. Four test stands and three small calibration towers are in front of the test control building. During the reporting period, two of the four test stands which have always been observed occupied by probable signal generator vans were cable connected to the test control building.

24. (S/WN) Test area B, fence secured, consists of one test/control building with two large doors and a test stand. During the reporting period, the special-purpose trailer and the four vans were observed next to the test/control building.

25. (S/WN) The radar cross-section test area consists of two towers that are 32 meters high and 75 meters apart. A spherical radar target is suspended 30 meters aboveground, midway between the towers. The position of the target has never been changed since it was first observed in early 1974.

26. (S/WN) Four test/calibration towers, designated 1 through 4, are at the Ulyanovsk radar facility. Small structures are atop all four of these towers. Tower 1 is 22 meters high, and tower 2 is 32 meters high; both are cable connected to the test/control building in area B. Towers 3 and 4 are both 32 meters high and are probably cable connected to the test control building in area A.

Volokolamsk Radar R&D Facility

27. (S/WN) The Volokolamsk Radar R&D Facility, 5.5 nm east of Volokolamsk, is involved in radar cross-section testing and in air-warning and air traffic control radar testing. This facility (Figure 7) consists of six test areas, designated A through F, and an administration/general support area.

28. (S/WN) Test area A, the radar cross-section test area, is in the northeast corner of the facility. This area consists of three 40-meter-high lattice towers, with a cable strung between two of them (Figure 8). The third tower is equidistant from the other two towers and forms a triangle; however, the third tower is not cable connected to the other two towers. A concrete pad with a rotatable test platform was observed centered between the two cable-connected towers. On the south side of the concrete pad is an elevated semicircular rail track. On the north side of the concrete pad is an A-frame crane that can be raised over the concrete pad to lift objects on and off the rotatable test platform. This crane has always been observed in a lowered position. Various unidentified pieces of equipment have been observed on the concrete pad. A second concrete pad for static testing of equipment is northeast of the first concrete pad. During 1979, an SA-2 launcher was on the static concrete pad. During the early part of 1980, this launcher was moved into an open storage area. During 1981, an RSBN-4N navigational aid was on the second concrete pad. Support for area A includes three test buildings, a control building, two support buildings, and several electronics vans.

29. (S/WN) Test area B is unsecured and in the north-central portion of the facility and consists of three radar mounds occupied by one BAR LOCK radar, one SIDE NET radar, and one FLAT FACE A radar. Other electronics equipment around area B includes one SQUAT EYE radar, one SPOON REST radar, three tower-mounted CONE DISH antennas, and one MERCURY PLATE antenna system. Support for area B includes one double arch-roofed bunker in the late stage of construction, three shop buildings, a radar storage building, six support buildings, and two water towers.

30. (S/WN) Test area C is secured and in the northwest corner of the facility and consists of two test positions and a control building. During the reporting period, no activity was observed in area C.

31. (S/WN) Test area D is secured and on the west side of the facility and consists of one multibay test building, one small test building, a calibration tower, and three small support buildings. A probable navigational aid was observed in this area in front of the multibay test building during 1981.

32. (S/WN) Test area E is in the central portion of the facility and consists of two multibay test buildings, two single-bay test buildings, three test/calibration towers, one unidentified tower, and four support buildings. A [redacted] diameter dish antenna, oriented in a westerly direction, is mounted on a pedestal in line with the test buildings.

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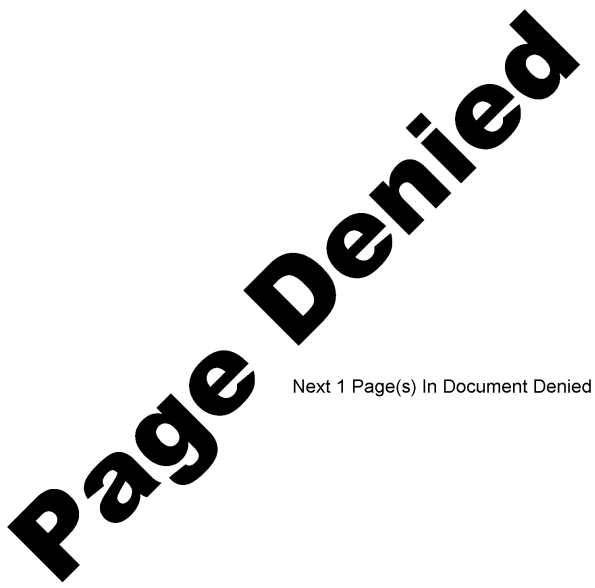
33. (S/WN) Test area F (Figure 9) is on the southern edge of the facility and consists of six small test buildings, each with a calibration tower or a calibration position, a water tower, and five support buildings. Several small dish antennas and a van trailer were observed in this area during the reporting period.

34. (S/WN) Housing/support for the facility is in the center of the installation and consists of one administration building, six multistory barracks, two probable quarters, a heating plant, a vehicle maintenance building, and several support buildings.



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REFERENCES

IMAGERY

(S/WN) All available satellite imagery acquired from January 1970 to [redacted] was used in the preparation of this report. 25X1

MAPS OR CHARTS

SAC. US Air Target Chart, Series 200, Various Sheets, scale 1:200,000 (UNCLASSIFIED)

REQUIREMENT

COMIREX U01
Project 542065U

(S) Comments and queries regarding this report are welcome. They may be directed to [redacted] 25X1
Soviet Strategic Forces Division, Imagery Exploitation Group, NPIC, [redacted] 25X1

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